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ABSTRACT

A study compared selected language features of children in five different reading programs. Selected for study were two first grade classes from each of five urban school districts that were using either the Lippincott, Language Experience, Houghton Mifflin, Open Court, or the Ginn 720 basal reading programs. A prereading test was administered to determine if significant differences existed between the groups in reading readiness. In the fall, a story was read aloud up to its climactic point to each child individually, and each was asked to predict a story ending. Responses were taped, transcribed, and analyzed. The process was repeated in the spring. Statistical analyses were completed for (1) total number of predictions, (2) total number of words expressed, (3) number of T-units, (4) average length of T-unit, and (5) average syntactic complexity. Children in the Lippincott and Ginn 720 programs made significant gains in number of predictions. Children in those two programs and the Language Experience program made significant gains in total number of words. The Lippincott, Language Exerience, and Houghton Mifflin programs made significant gains respectively on number of T-units, total number of words, and average syntactic complexity. Those in the Open Court program made no significant gains on any of the variables, while those in the Lippincott program did so on three of the five variables. (HTH)

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Evaluation of Oral Responses of Urban First Graders in Five Different Reading Programs

by

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and

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Evaluation of Oral Responses of Urban First Graders
in Five Different Reading Programs

Our experiences with many first grade programs led to the observation that there are considerable differences in language proficiency at the end of first grade. We realized that language is developed and determined largely in the home in preschool years. We also recognized that language instruction is provided throughout the entire school day, and that although teachers may have similar credentials, neither the quality nor the quantity of instruction can be controlled. Teachers occasionally supplement basal programs with additional material; thus programs are seldom "pure." Therefore, language instruction is not restricted to, nor dependent upon specific reading programs. Despite these restrictions, we wondered if there were significant differences in the oral language proficiency of children instructed in various reading programs.

It has been recognized that asking children to predict a story ending is a good instructional strategy for enhancing comprehension (Smith, 1981). This practice encourages anticipation of plot, confirmation, rejection, or reevaluation of predictions. Our question became: Would there be significant differences in the oral language production of urban, first grade children in various instructional reading programs, when they were asked to predict a story ending?

Related Literature

The relationships between language proficiency and literacy have been presented in the literature of linguistic and educational research (Loban 1963, 1976; Chomsky 1972; Smith et al, 1976). Loban's longitudinal study of the language of elementary school pupils revealed the high correlation between proficiency in spoken language and proficiency in literacy. Chomsky's (1972) study of the relationships between stages in language development and reading exposure showed the preschoolers who had been read to frequently, and primary grade pupils who read independently were on a higher level of linguistic development than children of the same ages who

had not had this extensive exposure to reading. Brown (1979) argued that the extent of a child's sense of story influences his/her comprehension and prediction of syntax.

The measurement of stages of language development of elementary school pupils is pertinent to this study. The investigation of the syntax of kindergarten and elementary school children by O'Donnell, Griffin and Norris (1967) demonstrated the differential lengthening of syntactic units in successive grades and the expansion of syntactic resources. The measurement of this growth was achieved by segmenting children's language into syntactic units called T-units. This method of quantifying degrees of linguistic proficiency is considered superior to traditional systems of analysis derived from structural linguistics. The T-unit can be adapted to both written and oral language in measuring children's growth in syntactic maturity. Furthermore, the O'Donnell study supports Hunt's (1965) finding that "when fairly extensive samples of children's language are obtained, the mean length of T-units has special claim to consideration as a simple, objective, valid indicator of development in syntactic control."

Cross-sectional and longitudinal studies based on transformational generative grammar (Menyuk, 1969, 1971) also provide data which present the order of progression in language, and, more importantly, the notion of cumulative complexity (Chomsky, 1969; Brown, 1973). Botel, Dawkins and Granowsky (1973), by divising a formula, have applied this concept of syntactic complexity to measurements of children's language, both written and oral, and also to reading materials. Their formula identifies syntactic structure and assigns weights on a hierarchial scale.

Procedure

In each of five urban districts in northern New Jersey, two first grade classes were selected for the study. Each district was using one of the following reading programs: Lippincott, 1975 Ed. (N = 41), Language Experience, (N = 36), Houghton-Mifflin, 1979 Ed. (N = 32), Open Court, 1979 Ed. (N = 27),

and Ginn 720, 1976 Ed. (N = 28). These programs included analytic and synthetic methods, language experience and linguistic emphases.

A suitable story was selected for the project. In the Fall, the writers read part of the story to the climatic point to each child individually, and then asked each child to tell how he/she thought the story would end. If a response was delayed, the question was repeated or rephrased. Additional comments encouraging continuing responses were given when necessary. Responses were taped, transcribed and analyzed. In the Spring, the same process of reading part of the story, eliciting a prediction, taping and analyzing was repeated.

Since no I.Q. scores were available, the Clymer-Barrett Prereading Battery (1968) was administered in the Fall to determine if significant differences existed between the groups on reading readiness.

Language production was measured by statistical analyses of the following five dependent variables in Spring and Fall: total number of predictions, total number of words expressed, number of T-units, average length of T-unit, and average syntactic complexity.

All participating teachers were certified, had over five years experience, and were rated as "effective" teachers by their principals.

The Story

A group of first grade teachers was invited to select the story to be read to the children in the study. "The Horse Who Lived Upstairs," by McGinley (1944) was chosen for age-appeal, familiar concepts, plot, and the potential for various endings. It also contained the two major ingredients of a good story, continuity and conflict (Bruce, 1978). The story is about Joey, a city horse who pulls a vegetable wagon for his master. Although well treated by his master and loved by neighborhood friends, he is unhappy for he yearns to live in the country. His unhappiness is compounded after subsequent events bring him to a farm where he is overworked and

neglected by the farmer. His conflict is resolved when his old master returns to repossess him and return him to the city.

Defintion of Terms

Prediction: A statement(s) providing a sensible ending or solution to the problem in the story. It could, for example, relate to the general concept of returning to the city, which would include such ideas as going home with the master, being happy, getting sugar to eat, giving children rides, and pulling the wagon again. Responses were rated on a 0 - 7 point scale.

T-Unit: A grammatical unit which states a proposition. It is a single independent predication together with any subordinate clauses that may be grammatically related to it; it may be a simple or complex sentence, but not a compound sentence (Loban, 1976; Hunt, 1965; O'Donnell et al, 1967). An example of a T-unit is the sentence, "Joey didn't have nothing to eat because the farmer forgot to feed him." This T-unit consists of an independent and a dependent clause.

Average Syntactic Complexity: Application of transformational grammar to measures of syntactic complexity in this study was achieved through the use of the Botel, Dawkins and Granowsky Formula (1973). This formula identifies specific syntactic elements and assigns weights to these types of grammatical patterns on a hierarchial scale. The average complexity of any passage is the average count of the sentences evaluated.

Design

Fall Data

The analysis of variance of the Clymer-Barrett Prereading Fall scores showed there were significant differences among the groups, with $F = 9.173$ and $P < 0.0001$. The Scheffé test showed that scores achieved by students in the Language Experience, Houghton-Mifflin and Open Court programs were significantly superior to those in the Lippincott program at .05 level. Tables 1

and 2 present the means and analyses of variance respectively.

Table I
Clymer-Barrett Prereading Battery, Fall Data

Group	N	Mean	S.D.	S. Error
Lippincott	41	44.29	7.69	1.2
Language Experience	36	48.58*	5.79	0.9
Houghton-Mifflin	32	51.25*	3.39	0.6
Open Court	27	51.51*	4.63	0.8
Ginn	28	46.89	6.26	1.1
Total	164			

Table 2
Clymer-Barrett Prereading Battery
Analysis of Variance, Fall Data

Source	d.f.	S.S.	M.S.	F.	P.
Between Groups	4	1274.02	318.50	9.173	<0.0001
Within Groups	159	5520.64	34.72		
Total	163	6794.66			

Analysis of the five dependent variables of the Fall data indicated that there were significant differences among the groups only in the Total Number of Words, with F = 5.015 and P = 0.0008.

The Scheffe test indicated that scores achieved by students in the Houghton-Mifflin program were significantly superior to those in the Lippincott program at the .05 level. Means and analysis of variance are given in Tables 3 and 4 respectively.

Table 3
Total Number of Words, Fall Data

Group	N	Mean	S.D.	S. Error
Lippincott	41	23.63	15.43	2.41
Language Experience	36	27.58	19.62	3.27
Houghton-Mifflin	32	50.75[1]*	55.36	9.78
Open Court	27	46.81	39.75	7.65
Ginn 720	28	26.60	14.85	2.80
Total	164			

[1](Note that the S.D. of scores in the Houghton-Mifflin program was unusually large. This shows an extremely wide range or scatter of scores, from zero responses to those of over 250 words.)

Table 4
Total Number of Words
Analysis of Variance, Fall Data

Source	d.f.	Mean	S.S.	F.	P.
Between Groups	4	20827.80	5206.94	5.015	0.0008
Within Groups	159	165074.39	1038.20		
Total	163	185902.18			

Each of the five dependent variables was treated separately. It was important to determine if the scores of the Clymer-Barrett Prereading Battery and the scores of the Fall data were affecting each of the five dependent variables of the Spring data. Therefore these two factors became covariates in the analyses of covariance.

The program used was the General Linear Model Program (GLM) in the Statistical Analysis System (SAS), and the Scheffé test for small samples. None of the results of analyses of covariance on each of the five dependent variables was significant. (Due to constraints of space, non-significant results of analyses of covariance have been omitted.) Thus the Clymer-Barrett Prereading scores and the Fall data had no significant effect on the Spring data on any of the five dependent variables. Therefore each of the five variables in the Spring data was subjected to one way analysis of variance, in the Statistical Package for the Social Sciences (SPSS), and the Scheffé test.

Results

Number of Predictions

The treatment effect with df = 4 and F = 7.288 was significant ($P < 0.0001$). The Scheffé test indicated that scores of students in the Ginn 720 program were superior to those in the Language Experience and Houghton-Mifflin programs, and those in the Lippincott program were superior to those in the Language Experience program ($P = .05$). Means and analysis of variance are presented in Tables 5 and 6 respectively.

Table 5
Number of Predictions, Spring Data

Group	N	Mean	S.D.	S. Error
Lippincott	41	3.46*	1.09	0.17
Language Experience	36	2.16	1.44	0.24
Houghton-Mifflin	32	2.75	1.60	0.28
Open Court	27	2.88	1.39	0.26
Ginn 720	28	3.89*	1.57	0.29
Total	164			

Table 6
Number of Predictions
Analysis of Variance, Spring Data

Source	d.f.	S.S.	M.S.	F.	P.
Between Groups	4	58.40	14.60	7.288	<0.0001
Within Groups	159	318.54	2.00		
Total	163	376.94			

Average Length of T-Unit

The treatment effect with d.f. = 4 and F = 5.028 was significant (P = 0.0008). The Scheffe test showed that scores of students in the Open Court program were significantly superior (P = .05) to those in the Language Experience, Ginn 720 and Lippincott programs. Means and analysis of variance are shown in Table 7 and 8 respectively.

Table 7
Average Length of T-Unit, Spring Data

Group	N	Mean	S.D.	S. Error
Lippincott	41	7.04	1.50	0.23
Language Experience	36	6.43	2.13	0.35
Houghton-Mifflin	32	8.03	3.51	0.62
Open Court	27	9.97*	6.58	1.26
Ginn 720	28	6.93	1.60	0.30
Total	164			

Table 8
Average Length of T-Units
Analysis of Variance, Spring Data

Source	d.f.	S.S.	M.S.	F.	P.
Between Groups	4	231.60	57.90	5.028	0.0008
Within Groups	159	1830.85	11.51		
Total	163	2062.44			

Remaining Variables

In Total Number of Words, the treatment effect with d.f. = 4, F = 0.756 and P = 0.5552 was not significant. In Number of T-units, the treatment effect with d.f. = 4, F = 2.874 and P = 0.0247, was significant. However the Scheffe test indicated that no two groups were significantly different. In Average Syntactic Complexity, the treatment effect with d.f. = 4, F = 3.318 and P = 0.0122 was significant. However the Scheffe test showed that no two groups were significantly different. Thus no significant differences were observed among the five programs, in these remaining variables.

Comparison of Fall and Spring Data Within Programs

When the Fall and Spring data of each individual program were compared by t tests on every variable, only the following programs showed significant gains (Table 9).

Table 9
Comparison of Fall-Spring
Data Within Individual Programs:
Significant t Test Results

Program	t.	d.f.	P.
Lippincott			
Number of Predictions	4.57	40	0.0001**
Total Number of Words	5.98	40	0.0001**
Number of T-units	5.46	40	0.0001**
Language Experience			
Total Number of Words	2.36	35	0.024*
Houghton-Mifflin			
Average Syntactic Complexity	2.37	31	0.024*
Ginn 720			
Number of Predictions	3.62	27	0.001**
Total Number of Words	2.63	27	0.014**

* P = .05
** P = .01

Thus children in Lippincott and Ginn 720 programs made significant gains between Fall and Spring on Number of Predictions. Those in Lippincott, Language Experience and Ginn 720 all made significant gains on Total Number of Words. Those in Lippincott, Language Experience and Houghton-Mifflin programs made significant gains respectively on Number of T-units, Total Number of Words and Average Syntactic Complexity. Those in Open Court

program made no significant gains between Fall and Spring on any of the five variables, while those in Lippincott program did so on three of the five variables.

Limitations of the Study

The typical pattern of attrition occurring in urban areas was evident between Fall and Spring, greatly decreasing the sample population, and the classes involved had been previously established as intact groups. Because of the uncontrolled variables initially stated, one should not assume direct causality, i.e. that the various reading programs are causing the observed data reported. Reading programs are related to the results but are not the sole determinants.

Summary

On the number of predictive factors, student scores in the Ginn 720 program were significantly superior to those in the Language Experience and Houghton-Mifflin programs, while those in the Lippincott program were superior to those in the Language Experience program.

In measuring the average lenth of T-units, student scores in the Open Court program were significantly superior to those in the Language Experience , Ginn 720 and Lippincott programs.

There were no significant differences between student scores in these reading programs on total number of words, number of T-units or average syntactic complexity. Thus results showed that scores in no one program emerged as significantly superior in two or more of the variables.

Commentary

These results should be viewed as observations concerning the possible role of reading programs within the larger parameters of language instruction. One might have surmised that significantly greater development of syntactic maturity would have been found in the Language Experience program, but this was not so.

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